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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,365	03/30/2004	James Edward Simpson	140163-1	4687

6147 7590 04/29/2009

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER	
SONG, HOON K	

ART UNIT	PAPER NUMBER
2882	

NOTIFICATION DATE	DELIVERY MODE
04/29/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/813,365	SIMPSON ET AL.	
	Examiner	Art Unit	
	HOON SONG	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-8,10-13,19,20 and 22-26* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-8,10-13 and 22-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 8/27/2008 has been entered.

Claim Rejections - 35 USC § 112

Claims 7-8 and 10-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 7, it is unclear what is meant by "axial coverage of up to 80 mm from the focal spot". "axial coverage" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4, 7-8, 10-11 and 22-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Chidester (US 6819741B2).

Regarding claims 1, 7 and 22, Chidester teaches an X-ray tube, comprising:

an anode assembly 14, comprising:

a target 33 for emitting X-rays upon irradiation with an electron beam,

a rotor shaft 24 coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system 26 supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode 16 configured to emit the electron beam wherein the cathode and the motor rotor system are located on the same side of the target and wherein cathode is generally parallel and radially offset to the rotor shaft; and

a cathode assembly comprising:

a cathode configured to emit the electron beam 30 and

an insulator isolating the cathode 40 from ground potential, wherein the insulator and the motor rotor system are located on the same side of the target and wherein the insulator is generally parallel and radially offset to the rotor shaft (figure 1).

wherein the X-ray tube provides axial coverage of up to 80 mm from the focal spot (Note: that functional recitations of "the X-ray tube provides axial coverage of up to 80 mm from the focal spot" have not been given patentable weight because they are directed to the operation of the apparatus and do not structurally distinguish the apparatus over the prior art. See MPEP 21

14. Since Carlson teaches a structurally same apparatus, it would be capable of performing the claimed functional operation).

wherein the X-ray tube provides high-voltage stability of up to 200 kV in operation (Note: that functional recitations of "the X-ray tube provides high-voltage stability of up to 200 kV in operation" have not been given patentable weight because they are directed to the operation of the apparatus and do not structurally distinguish the apparatus over the prior art. See MPEP 21 14. Since Carlson teaches a structurally same apparatus, it would be capable of performing the claimed functional operation).

Regarding claims 2, 8 and 23, Chidester teaches the insulator comprises a conical insulator (40).

Regarding claims 4, 10 and 24, Chidester teaches the insulator is offset in a radial direction to the motor rotor system (figure 2).

Regarding claim 11, Chidester teaches a collimator to direct the beam to the subject (figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-2, 4-8, 10-13 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. (US 5978447) in view of Chidester.

Regarding claim 1, Carlson teaches an X-ray tube, comprising:

an anode assembly, comprising:

a target for emitting X-rays upon irradiation with an electron beam,

a rotor shaft coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode configured to emit the electron beam wherein the cathode and the motor rotor system are located on the same side of the target and wherein cathode is generally parallel and radially offset to the rotor shaft.

However Carlson fails to teach cathode has an insulator isolating the cathode from ground potential.

Chidester teaches an x-ray cathode having an insulator (40 or 70).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray tube of Carlson with the cathode insulator as taught by Chidester, since the insulator would reduce electric arc (column 2 line 25-24 and the board decision).

Regarding claim 2, Carlson as modified by Chidester teaches the insulator comprises a conical insulator (40).

Regarding claim 4, Charlson as modified by Chidester teaches the insulator is offset in a radial direction to the motor rotor system (figure 2).

Regarding claim 5, Carlson teaches the bearing system distributes load substantially evenly (figure 2).

Regarding claim 6, Carlson teaches the bearing system straddles the target (figure 2).

Regarding claim 7, Carlson teaches an X-ray tube, comprising:

an anode assembly, comprising:

a target for emitting X-rays upon irradiation with an electron beam,

a rotor shaft coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode configured to emit the electron beam, and

wherein the X-ray tube provides axial coverage of up to 80 mm from the focal spot (Note: that functional recitations of "the X-ray tube provides axial coverage of up to 80 mm from the focal spot" have not been given patentable weight because they are directed to the operation of the apparatus and do not structurally distinguish the apparatus over the prior art. See MPEP 21 14. Since Carlson teaches a structurally same apparatus, it would be capable of performing the claimed functional operation).

However Carlson fails to teach cathode has an insulator isolating the cathode from ground potential.

Chidester teaches an x-ray cathode having an insulator (40 or 70).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray tube of Carlson with the cathode insulator as taught by Chidester, since the insulator would reduce electric arc (column 2 line 25-24 and the board decision).

Regarding claim 8, Carlson as modified by Chidester teaches the insulator comprises a conical insulator 40.

Regarding claim 10, Carlson as modified by Chidester the insulator is offset in a radial direction to the motor rotor system (figure 2).

Regarding claim 11, Carlson teaches a collimator 18 to direct the beam to the subject.

Regarding claim 12, Carlson teaches the bearing system distributes load substantially evenly (figure 2).

Regarding claim 13, Carlson teaches the bearing system straddles the target (figure 2).

Regarding claim 22, Carlson teaches an X-ray tube, comprising:

an anode assembly, comprising:

a target for emitting X-rays upon irradiation with an electron beam,

a rotor shaft coupled to a motor rotor system and the target, the rotor shaft configured to rotate the target, and

a bearing system supporting the rotor shaft; and

a cathode assembly, comprising:

a cathode configured to emit the electron beam.

wherein the X-ray tube provides high-voltage stability of up to 200 kV in operation (Note: that functional recitations of "the X-ray tube provides high-voltage stability of up to 200 kV in operation" have not been given patentable weight because they are directed to the operation of the apparatus and do not structurally distinguish the apparatus over the prior art. See MPEP 21 14. Since Carlson teaches a structurally same apparatus, it would be capable of performing the claimed functional operation).

However Carlson fails to teach cathode has an insulator isolating the cathode from ground potential.

Chidester teaches an x-ray cathode having an insulator (40 or 70).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the x-ray tube of Carlson with the cathode insulator as taught by Chidester, since the insulator would reduce electric arc (column 2 line 25-24 and the board decision).

Regarding claim 23, Carlson as modified by Chidester teaches the insulator comprises a conical insulator.

Regarding claim 24, Carlson as modified by Chidester teaches the insulator is offset in a radial direction to the motor rotor system.

Regarding claim 25, Carlson teaches the bearing system distributes load substantially evenly (figure 2).

Regarding claim 26, Carlson teaches the bearing system straddles the target (figure 2).

Claims 5-6, 12-13 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chidester in view of Carlson et al. (US 5978447).

Regarding claim 5-6, 12-13 and 25-26, Carlson fails to teach the bearing system straddles the target (figure 2).

Carlson teaches a bearing system straddles a target.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the bearing system of Chidester with the bearing system as taught by Carlson, since it would distributes load evenly.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOON SONG whose telephone number is (571)272-2494. The examiner can normally be reached on 10:30 AM - 7 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hoon Song/
Primary Examiner, Art Unit 2882